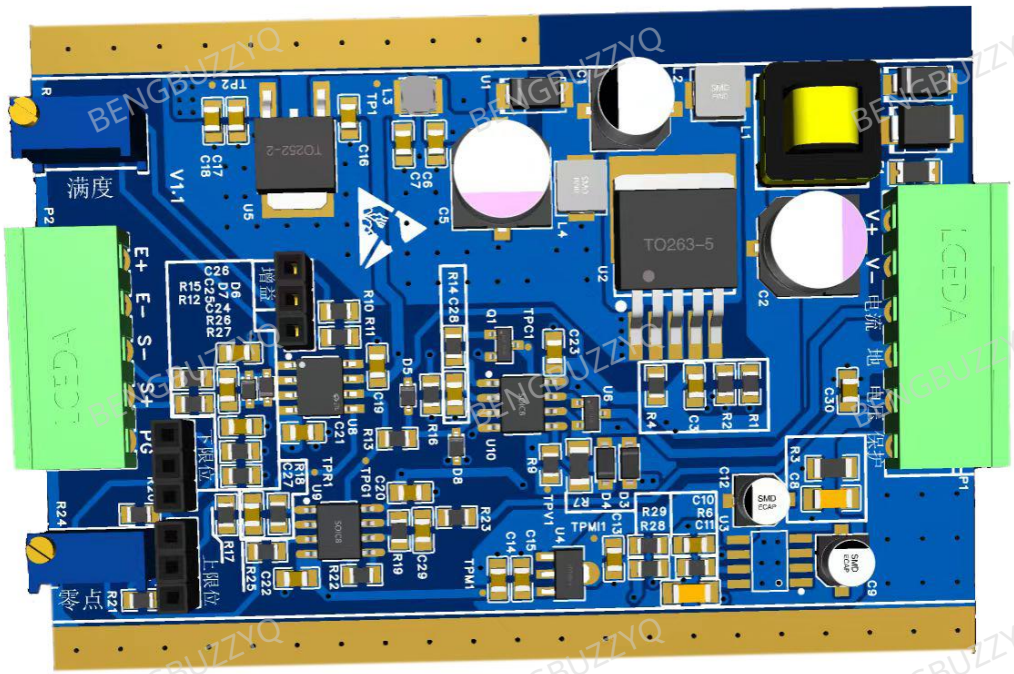
High-precision analog transmitter

Instruction manual



V2.10

BENGBUZZYQ



Key features:

- Aluminum alloy shell, strong and durable, good anti-interference performance
- High-precision op-amp circuit, multiple filtering, high accuracy and good stability
- The voltage and current can be output at the same time, and the zero point adjustment range is large
- The high-end buck-boost chip is adopted, which can ignore the fluctuation of the power supply voltage and stabilize the output
- It is suitable for various strain gauge sensors such as weighing, tensile pressure, and torque

Technical parameters

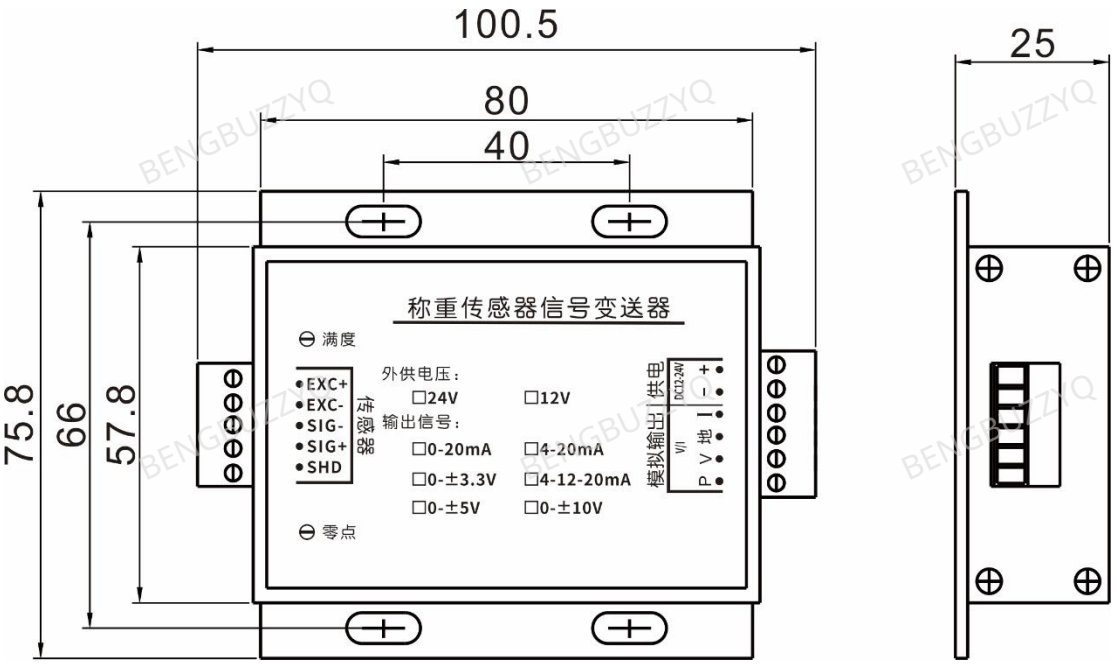
- Working voltage: DC12~24V
- Excitation voltage: DC5V
- Input Load: 1-8 bridge sensors with 350Ω impedance
- Adaptation sensitivity range: 0.8-3.0mV/V
- Output Signal: 0-±10V, 0-±5V, 0-±3.3V, 0-20mA, 4-20mA, 4-12-20mA
- Operating temperature range: -20-80° C

- Working Ambient Humidity: 10%RH-90%RH (non-condensing)
- Accuracy: Better than 0.03% F.S

How it works:



Dimensions



Wiring definition

sensors					Power supply		Analog output			
					DC12-24V		V/I			
EXC+	EXC-	SIG-	SIG+	SHD	+	-	I	Land	V	P
Motivate positive	Negative incentiv	The signal is	The signal is	Shield wire	The power supp	The power supp	Current output	public space	Voltage output	The enclosure is

	e	nega tive	posi tive		ly is posi tive	ly is nega tive				grou nded

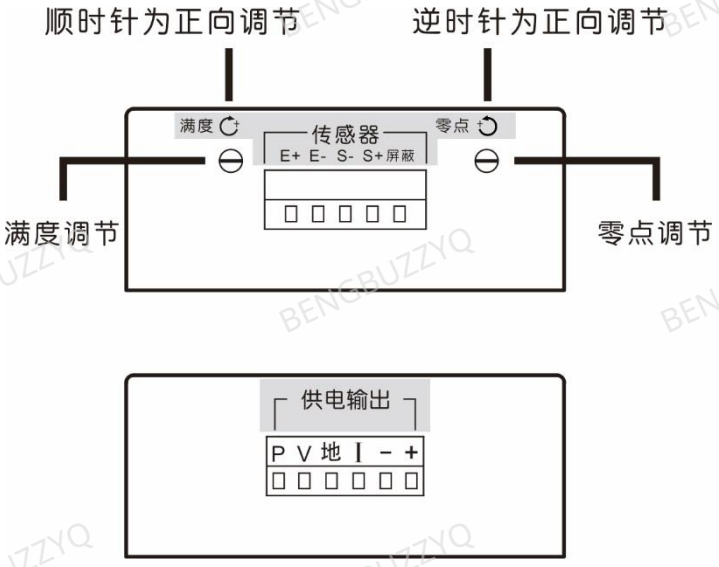
Note: The above wiring is defined as a four-wire connection method, if you need a three-wire system, please short the power supply negative and the common ground, if the output signal is positive and negative and the sensor force direction is opposite, please adjust the sensor signal positive (SIG+) and the sensor signal negative (SIG-). **This transmitter can simulate voltage and current output at the same time, but because of the common zero point and full potentiometer, it can only meet the accuracy of one output signal.**

Debug and calibrate

The company's transmitter has been pre-adjusted according to the sensor sensitivity of 2.0mV/V when it is shipped, and if the sensor sensitivity matches when the customer uses it, it can be directly adjusted to zero. For further debugging and calibration, follow these steps:

1. Connect the sensor, transmitter and power supply output signal line according to the wiring definition, and connect the positive and negative ends of the output signal to the multimeter.

2. The sensor is installed stably in the no-load state, so that the transmitter is supplied with 12/24V DC voltage, and the specific is subject to the transmitter face tag identification.



Debugging method of voltage type transmitter (taking 0-10V as an example, step 1.2.3.4.5)

3. Observe the multiplayer and adjust the zero point adjustment

potentiometer so that the indicator is "0" V.

4. The sensor is loaded with weights, and it is appropriate to take 20%~80% of the full scale of the sensor, and after the multimeter value is stable, adjust the fullness adjustment potentiometer, so that the value of the multimeter is the required value. (For example, if the full range of the sensor is 200kg, the output of the transmitter is 0-10V, and the loaded code is 20kg, the universal representation value should be 1V.) The zero point of the sensor corresponds to the zero point of the transmitter 0V, and the full scale of the sensor corresponds to the full scale of the transmitter 10V, which is proportional, that is: 200kg/10V = 20kg/a, a is the corresponding value of the multimeter)

5. Repeat steps 3,4 until the error is within the desired range.

Debugging method of current type transmitter (taking 4-20mA as an example, step 1.2.6.7.8)

6. Observe the multi-purpose representation and adjust the zero-point adjustment potentiometer so that the indicator is "4mA".

7. The sensor is loaded with weights, and it is appropriate to take 20%~80% of the full scale of the sensor, and after the multimeter value is stable, adjust the fullness adjustment potentiometer, so that the value of the multimeter is the required value. (For example, if the sensor is 200kg at full scale, the transmitter output is 4-20mA, and the loaded code is 20kg, the universal representation value should be 5.6mA.) The zero point of the sensor corresponds to the zero point of the transmitter 4mA, and the full scale of the sensor corresponds to the full scale of the transmitter 20-4=16mA, which is proportional, that is: 200kg/16mA = 20kg/a-4mA, a is the corresponding value of the multimeter)

8. Repeat steps 6, 7 until the error is within the desired range.

Special debugging

1. 4-12-20mA regulation

The 4-12-20mA output is a special output with a zero point of 12mA, a negative full-scale range of 4mA, and a forward full-scale range of 20mA

(1) Open the sensor housing and remove the circuit board

(2) Unplug the blue jumper cap near the zero potentiometer, and then insert it into the 2 position as shown in the figure below (5 and 6 short connections)

(3) Refer to the debugging calibration and adjust the fullness of the zero point, and the zero point is 12mA

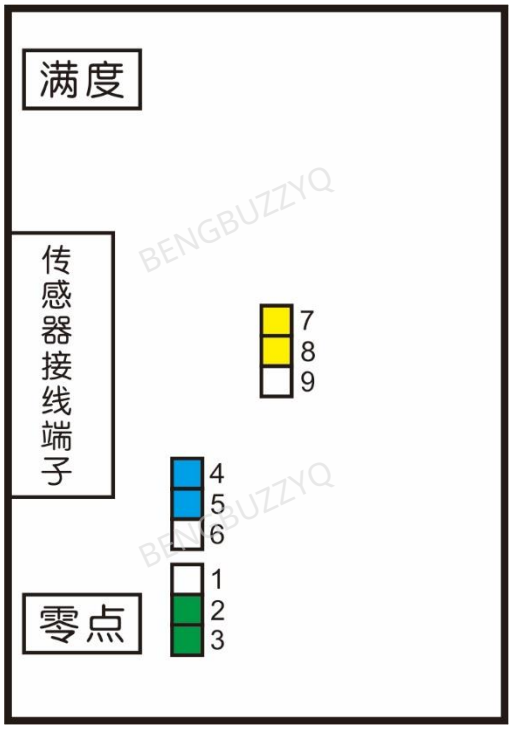


Fig.1 Jumper cap factory position

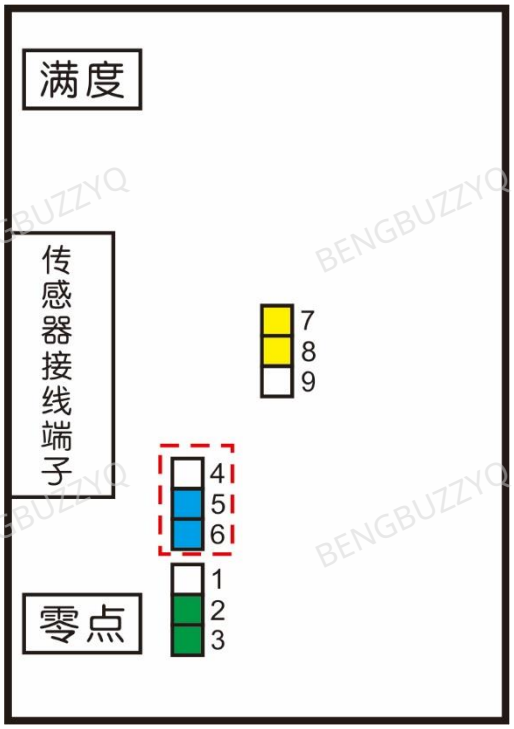


Fig.2 4-12-20mA output or The negative direction of the zero point is large and exceeds the adjustment range

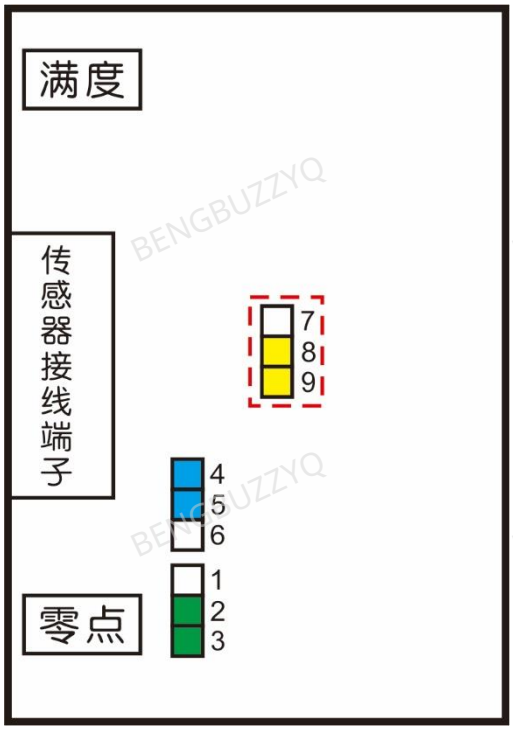


Fig.3 The sensitivity is greater than 1.7mV/V

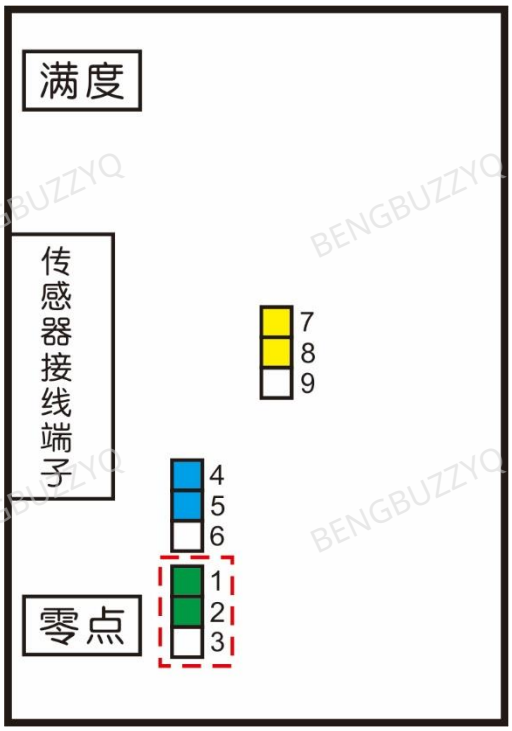


Fig.4 The positive direction of the zero point is large

0-±3.3V output out of regulation range

2. 0-±3.3V regulation

The output adjustment range of 0-±3.3V is small, and the sensor sensitivity is greater than 1.5mV/V

(1) Open the sensor housing and remove the circuit board

(2) Unplug the yellow jumper cap near the zero potentiometer, and then insert it into the 3 position as shown in the figure above (8 and 9 short connections)

(3) Refer to the debugging and calibration to adjust the fullness of the zero point

3. The zero point is out of the adjustment range

The zero point is out of the adjustment range means that the zero point output is too large, and the output can not be adjusted by the zero potentiometer to adjust the output of 0V or 4mA, which is generally caused by the large zero point of the sensor itself, such as the sensor is no-load, and the zero point output is 3V or -3V, which needs to be operated as follows

(1) Open the sensor housing and remove the circuit board

(2) If the forward direction is large, such as the zero point output of 3V or 9mA, unplug the green jumper cap near the zero potentiometer, and then plug it into the position as shown in Figure 4 above (1 and 2 short connections)

(3) If the negative direction is large, such as the zero point output -3V or 0mA (the current is not in the negative direction), unplug the blue jumper cap near the zero potentiometer, and then plug it into the position as shown in the figure 2 above (5 and 6 short connections).

(4) Refer to the debugging and calibration to adjust the fullness of the zero point

Sensitivity adaptation range

The sensitivity adaptation range corresponding to different positions of the yellow jumping cap is as follows

Jump hat position Sensitivity range Output range	0-±5V	0-±10V	0-±3.3V	4-20mA	4-12-20mA
7/8 Short connection	0.4-2.5mV/V	0-7-4.0mV/V	0.3-1.7mV/V	0.4-3.0mV/V	0.2-1.3mV/V
8/9 Short connection	2.5-4.0mV/V		1.6-3.0mV/V		1.3-2.3mV/V

Warranty Statement

The Company provides a one-year limited warranty commitment on the product from the date of shipment, which includes repair and replacement services only for defective products.